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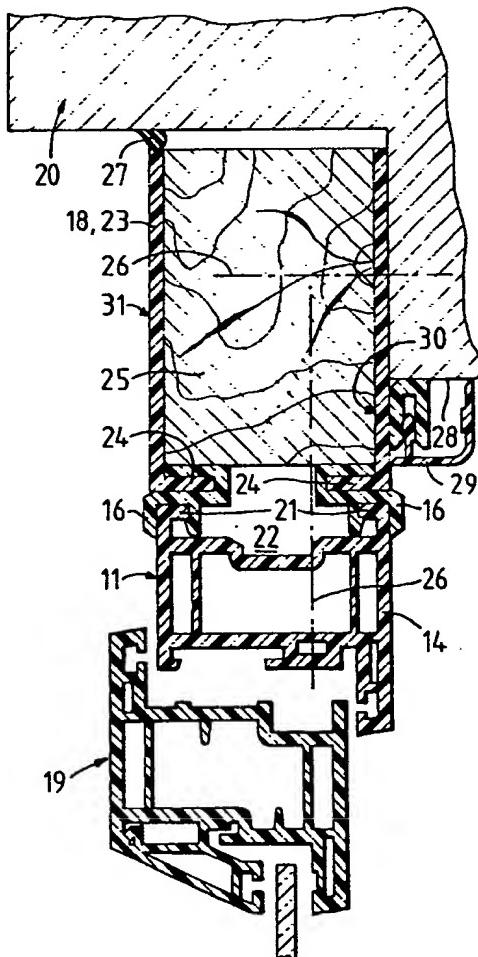
(58) Field of search

E1J
Selected US specifications from IPC sub-class E06B

FIG. 2.

(54) Window frame

(57) A window frame assembly 11 provided with a peripheral connector extrusions 16 which locate L-section press-in gap-closing extrusions 30, 31 to close a space at any predetermined angle between the assembly and a building structure.



The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

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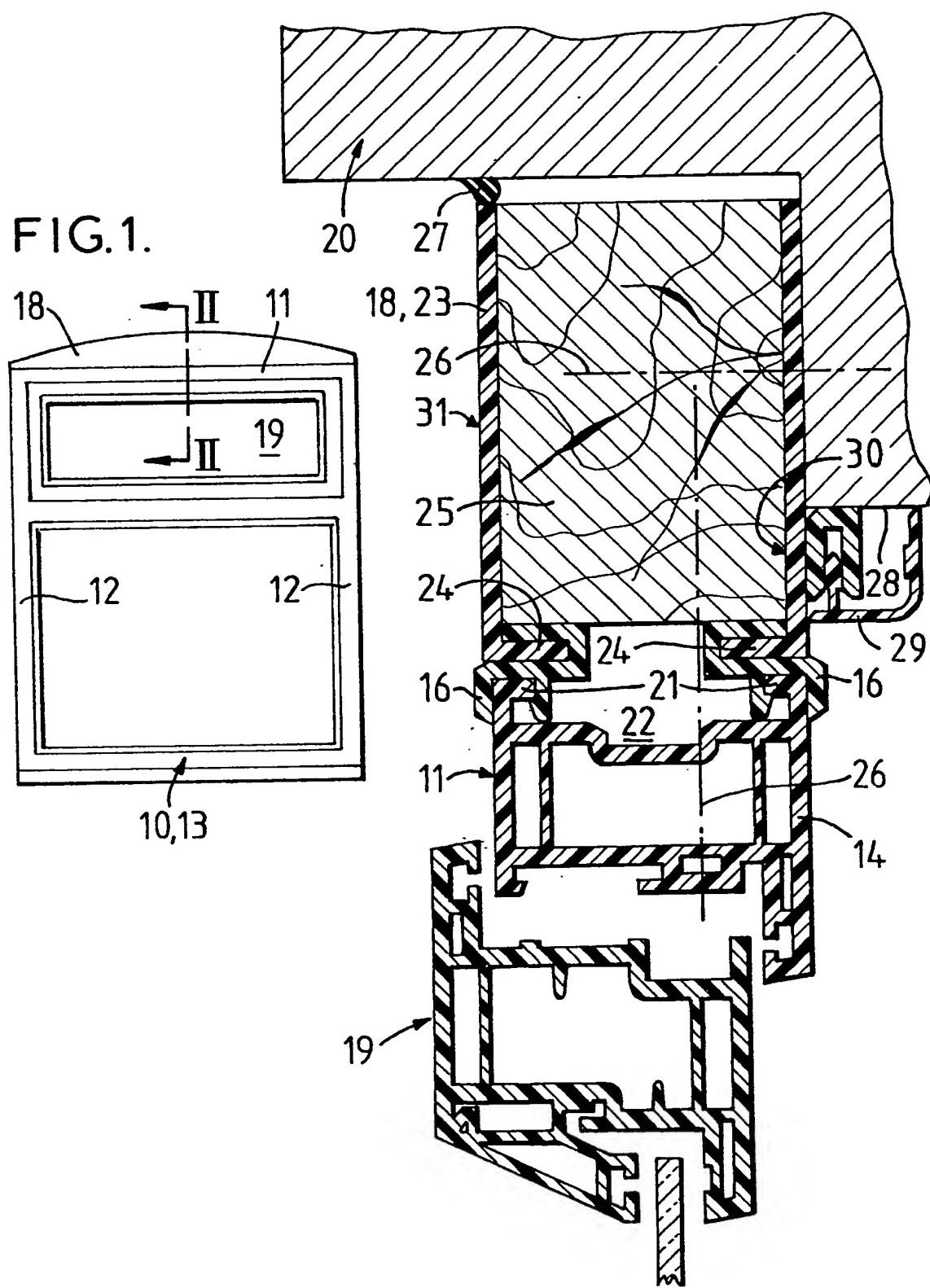
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FIG. 2.

FIG. 1.



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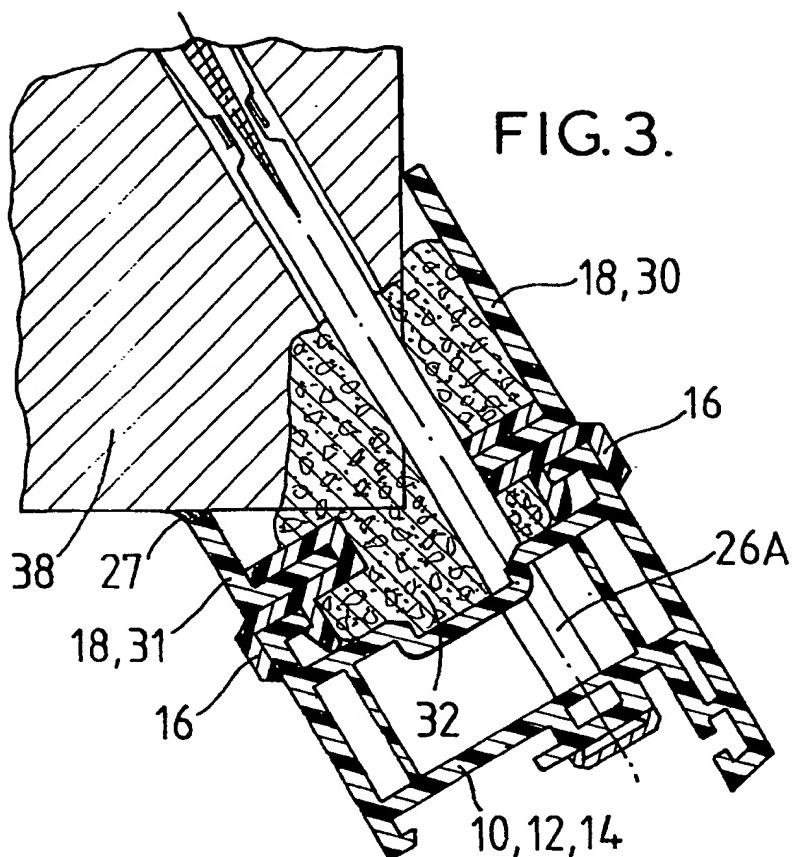
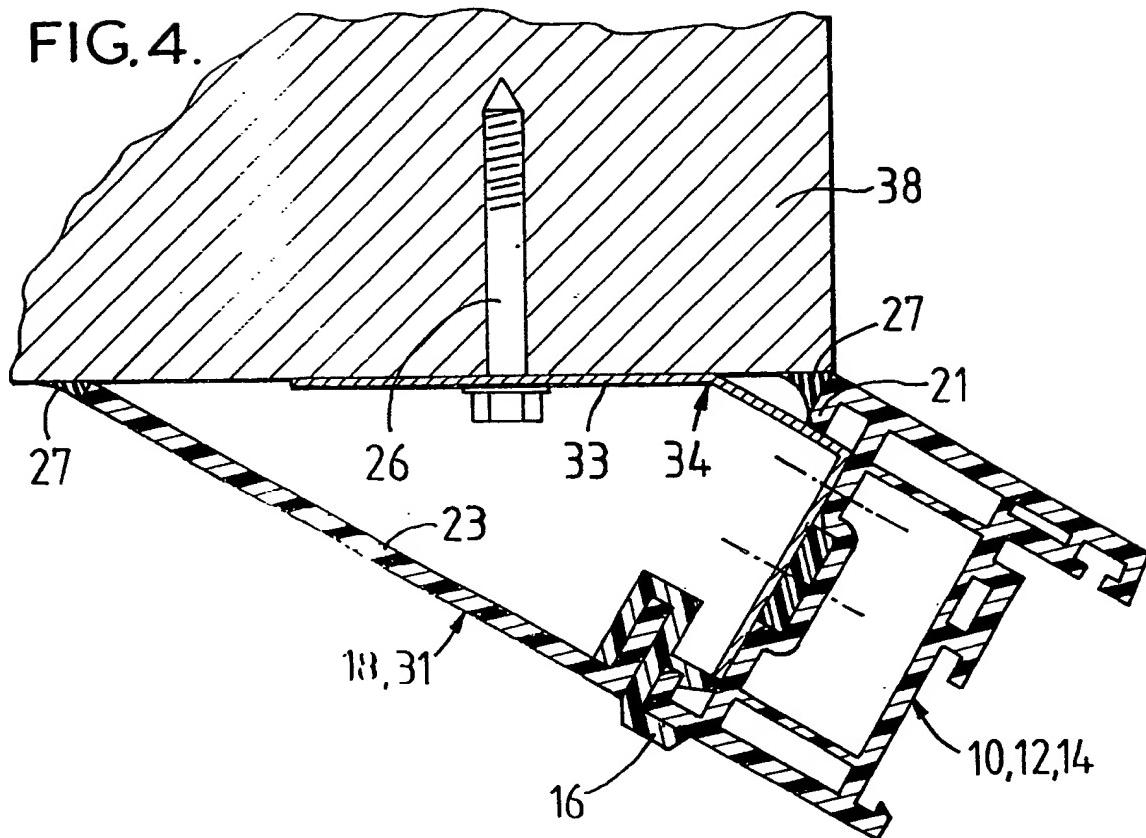


FIG. 4.



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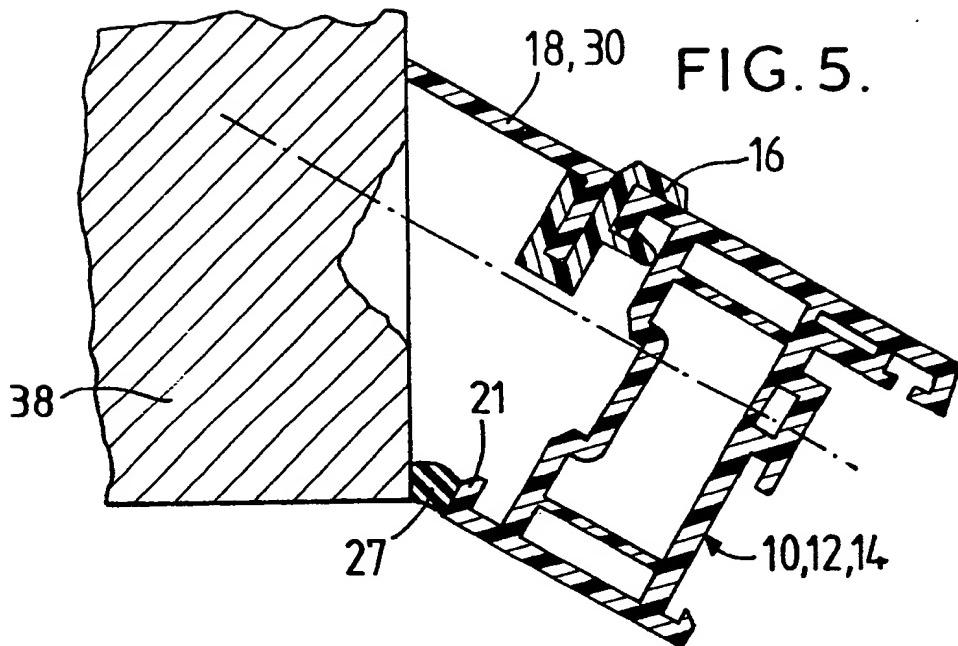
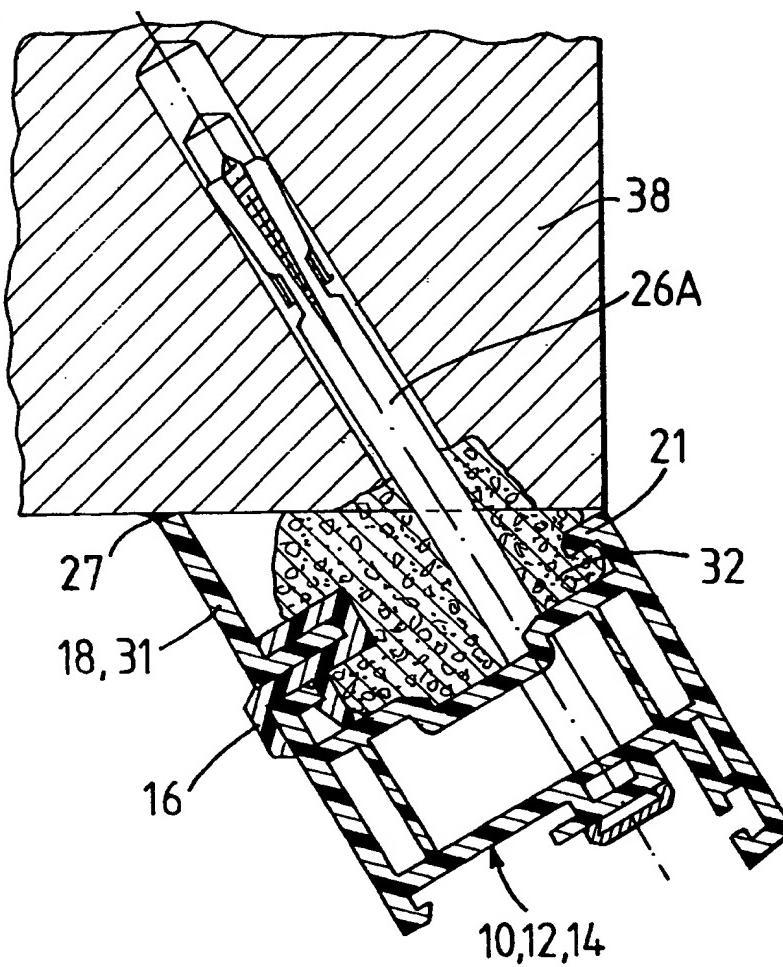


FIG. 6.



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FIG. 7.

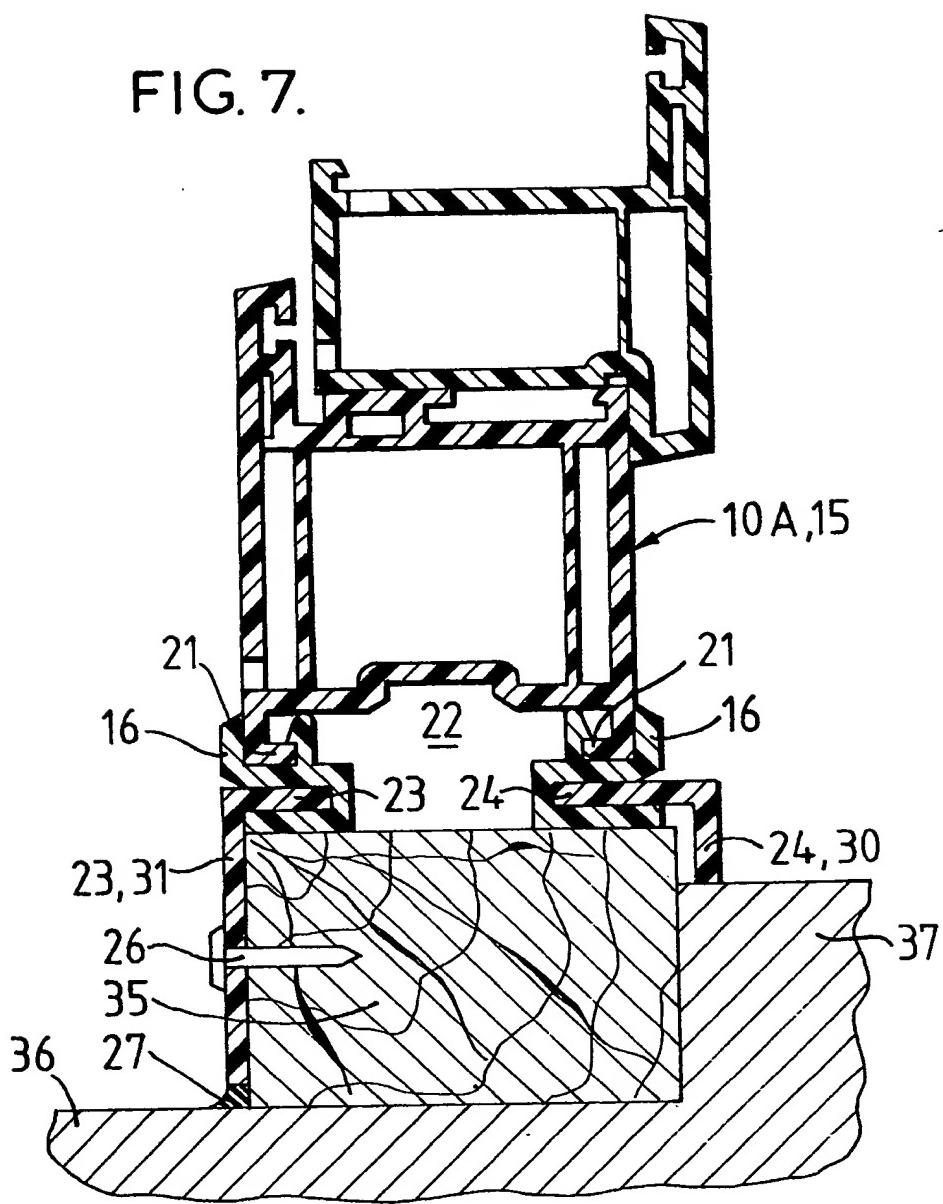


FIG. 8.

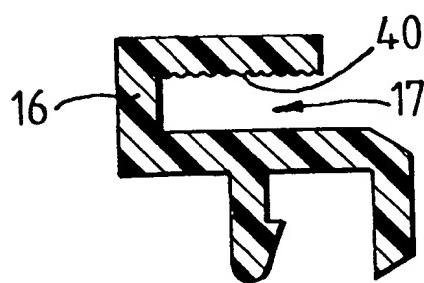
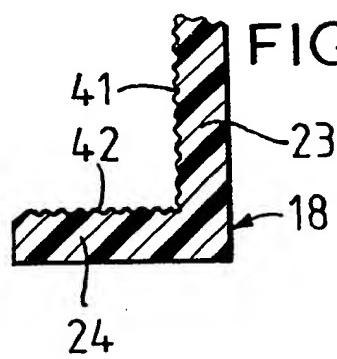


FIG. 9.



SPECIFICATION**Door or Window Frame Apparatus**

This invention concerns door or window frame apparatus having an outer frame assembly, for fitting in an opening in a building structure.

It is known to fabricate outer frame assemblies from extruded members of aluminium or plastics material, and to secure such assemblies into structures so as to occupy apertures in the structures. However, a variety of problems confront the manufacturer and installer of such frame assemblies, such as:

- (a) the openings may be defined by irregular or uneven surfaces, so that small gaps of various sizes are left between these surfaces and the periphery of the frame assembly,
- (b) the outer frame assemblies are usually made in rectangular form for economy and simplicity in construction, but the openings may be non-rectangular, e.g. may be of arched form or may be distorted by settlement of the building, so that there may be larger gaps between the periphery of the frame assembly and the structure;
- (c) the outer frame assembly may have to be installed so that its median plane is neither perpendicular to nor parallel with a surface of, or part of the structure at, the opening, e.g. as in a bay window, so that a tapering gap is left at each end of the outer frame assembly; and
- (d) the surface or surfaces around the opening may be stepped leaving a channel shaped gap or gaps at one but not the other side of the frame assembly.

Such gaps pose serious problems and give rise to considerable material cost and installation delay and inconvenience due to the great variety of packings, filling elements, joint coverings and sealing means of a variety of materials such as wood, plastics, metal, mortar and mastic required to close such gaps. Furthermore, the expedients adopted for closing the gaps may give rise to further problems of water leakage, insecurity, draughts and unsightly appearance.

An object of the invention is to enable said problems to be reduced or avoided.

According to the present invention there is generally provided door or window frame apparatus comprising an outer frame assembly and gap bridging means, wherein the gap bridging means comprises an L-section extrusion, the outer frame assembly being provided with connecting means which provide a socket open to one side of the frame assembly to accept one of the limbs of the extrusion so that the other of the limbs of the extrusion extends beyond the periphery of the frame assembly.

The extrusion is preferably formed so that the limbs of the L-section are unequal in length; and so that either limb can be inserted into the socket.

The connecting means may be in the form of a connector extrusion which engages a formation at the periphery of the outer frame assembly; and the latter preferably provides two such formations spaced apart to extend at or adjacent the sides of the

outer frame assembly.

The connector extrusion is preferably a snap fit onto the formation, and the socket, or a surface thereof, is preferably ribbed or grooved to engage ribbing or grooving on the L-section extrusion to hinder removal of the latter.

Each limb is preferably easily trimmed to shape for closing a gap.

The invention includes a door or window apparatus or installation comprising the apparatus of the invention in situ in an opening in a building structure, wherein a gap at either end of or above the outer frame assembly is closed by the gap bridging means to form a cavity.

A foamed material or rigid support may be accommodated in the cavity between the structure and the outer frame assembly.

The apparatus of the invention may thus comprise simply two relatively inexpensive extrusions

namely the L-section and connector extrusions, in addition to the outer frame assembly (which can be of any suitable form), and these extrusions may be easily cut to length, trimmed to fit and pressed into position, on site without requiring any other

components or constructional processes for substantially closing the gaps at least to the extent that they can be sealed by a mastic sealant.

However, the outer frame assembly may incorporate a structural extrusion, at either end or

the top, which integrally incorporates the connecting means to provide and sockets. However, this may be at the cost of increasing the number of different forms of expensive structural extrusions required to construct the outer frame assemblies.

The invention will be described further, by way of example, with reference to the accompanying diagrammatic drawings, wherein:

Figure 1 shows the outside face of window apparatus of the invention in elevation:

Figure 2 is an enlarged vertical cross-sectional view, on the line II-II in Figure 1, of an upper run of window frame apparatus of the invention incorporated in said window apparatus.

Figures 3, 4, 5 and 6 show horizontal cross-

sections through end runs of embodiments window frame apparatus of the invention forming parts of various bay-window installations.

Figure 7 a horizontal cross-section through an end run of door frame apparatus of the invention.

Figures 8 and 9 show components of the apparatus in cross-section.

In all embodiments the outer frame apparatus comprises a window or door outer frame assembly

10 or 10A, in which at least some of the top, end and bottom runs 11, 12 and 13 consist of a single standard window frame structural extrusion 14 or a door frame structural extrusion 15; comprises a connector extrusion 16 (Figure 8) which constitutes connecting means and provides a socket 17; and

125 comprises an L-shaped bridging extrusion 18 (Figure 9) which serves as bridging means.

In the embodiment shown in Figures 1 and 2 the window apparatus further includes an opening upper window assembly 19, of known form, pivotally connected to the outer frame assembly 10;

- and the apparatus is arranged for installation in a co-planar shallow arched opening in a structure of which a part 20 of the upper arch is shown in Figure 2.
- 5 The extrusion 14 is provided with two peripheral formations 21, which formations 21 are spaced apart to define walls of a peripheral channel 22, and an appropriate length of the extrusion 16 is snap-fitted onto each formation 21 so that one of the
- 10 sockets 17 opens inwards at the inside of the assembly, and the other socket opens outwards at the outside of the frame assembly. During installation a first length of the extrusion 18 is trimmed so that the longer of the two limbs 23 and
- 15 24 of the extrusion conforms to the shape of the part 20, and the shorter limb 24 is pressed to the socket 17 at the upper periphery of the inside of the frame assembly so that the limb 23 abuts the structure to provide an interior bridge 30 between the assembly
- 20 and the structure. A timber support 25 is then secured to the structure and to the extrusion 14 by fasteners 26, prior to a further length of the extrusion 18 being trimmed to close a gap between the part 20 and frame assembly and thereby to
- 25 cover the support 25, and provide an exterior bridge 31, when the limb 24 is pressed into the outwardly open socket 17. A small fillet 27 of mastic sealant is applied to seal the junction at the top of the installation.
- 30 Instead of being clamped between the support 25 and the structure, the limb 23 at the inside of the apparatus may be trimmed to extend upwards to an undersurface 28, provided, for example, by interior plastering of the structure, so that an optional finishing trim 29 may be dispensed with.
- The same extrusions 14, 16 and 18 may be employed where the median plane of the frame assembly lies at an acute or obtuse angle to a surface or surfaces of the structure to which the
- 35 assembly is to be secured to provide the interior and/or exterior bridge 30, 31, for example as illustrated in Figures 3 to 6, to close gaps of various forms between the end run (or even the top run) and the structure 38, and thereby enclose spaces in or through which fixings, supports and fillings may extend or are disposed, such as a masonry bolt fixing 26A, a self-setting or curing foam filling 32, a metal bracket 33 which is provided easily with an appropriate bend 34, a timber support, or any
- 40 suitable combination thereof; all of which are readily available and are usually or necessarily employed in fixing, supporting and sealing other parts of the framework to each other or to the structure.
- 45 In the apparatus shown in Figure 7, the extrusion 15 has a portion which is provided with the formations 21, to receive lengths of the connector extrusion 16, which lengths serve also as abutments to engage a timber subframe 35 around an opening
- 50 which is perpendicular to a part 36 of the structure. The limb 23 forming the exterior bridge 31 covers and is secured to the subframe 35, and is sealed to the part 36 by a fillet 27, whereas the exterior bridge 30 is made to plaster 37 on the part 36 so as to
- 55 enclose a part of the subframe which projects
- inwards beyond the extent of the frame assembly. This interior bridge is formed by reducing the length of the longer limb 23 to provide the necessary offset of the limb 24, and trimming the latter to fit against
- 60 or close to the plaster.
- A shown in Figures 8 and 9 one wall 40 of the socket, and the reverse faces 41 and 42 of the bridging section are ridged or recessed for interengagement to hinder withdrawal of the
- 65 relevant limb from the socket, and the ridging or recessing may be shaped to provide interlocking engagement which prevents such withdrawal unless accompanied by structural deformation of the ridging or recessing.
- 70 The invention is not confined to details of the foregoing examples and many variations are possible within the scope of the invention. For example, the formations 21 and channel 22 are known and are used, for example, in connecting
- 75 said section to a million, in connecting to other sections and as abutments, but could be omitted from the extrusion 14 and replaced, by modified formation of the extrusion, by formations shaped to provide the sockets 17, whereby to obviate the
- 80 extrusion 167. Whilst the extrusions described are all of a plastics material, such as UPVC, each or any of them could be of any suitable material, e.g. aluminium.
- 85 95 CLAIMS
1. Door or window frame apparatus comprising an outer frame assembly and gap bridging means, wherein the gap bridging means comprises an L-shaped extrusion, the outer frame assembly being provided with connecting means which provides a socket open to one side of the frame assembly to accept one of the limbs of the extrusion so that the other of the limbs of the extrusion extends beyond the periphery of the frame assembly.
 - 100 105 2. Apparatus as claimed in claim 1 wherein the extrusion is formed so that the limbs of the L-section are unequal in length; and so that either limb can be inserted into the socket.
 - 110 115 3. Apparatus as claimed in claim 1 or 2 wherein the connecting means is in the form of a connector extrusion which engages a formation at the periphery of the outer frame assembly; and wherein the latter provides two such formations spaced apart to extend at or adjacent the sides of the outer frame assembly.
 - 120 125 4. Apparatus as claimed in claim 3 as appended to claim 2 wherein the connector extrusion is a snap fit onto the formation, and the socket, or a surface thereof, is ribbed or grooved to engage ribbing or grooving on the L-section extrusion to hinder removal of the latter.
 - 130 5. Apparatus substantially as hereinbefore described with reference to any of Figures 2 to 7, of Figures 8 and 9 of the accompanying drawings.
 6. A door or window apparatus or installation comprising the apparatus as claimed in any preceding claim in situ in an opening in a building structure, wherein a gap at either end of or above the outer frame assembly is closed by the gap bridging means to form a cavity.

7. Apparatus as claimed in claim 6 wherein a foamed material or rigid support is accommodated

in the cavity between the structure and the outer frame assembly.

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